

Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) 2020–2025 Roadside Observational Study

Technical Appendix for Dhaka North Round Six

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The Johns Hopkins International Injury Research Unit partnered with the Centre for Injury Prevention and Research, Bangladesh (CIPRB) to conduct roadside observations in Round six (March 2024). The methods for these findings were developed by the Johns Hopkins International Injury Research Unit and implemented in collaboration with the CIPRB. This report provides results from observational surveys that represent population-level (citywide) prevalence of an important road safety risk factor, speed, in Round six. For speed, there were approximately 60,438 observations

Observation sites were selected to obtain a representative sample of vehicles and road users in each city, conditional on the safety of observers. There were 15 observation sites per risk factor, and a standardized protocol was used with vehicles selected for observation in a systematic quasi-random fixed sequence. Observations were performed between 06:30 a.m. and 07:00 p.m. on both weekend days and weekdays. The methods were designed to estimate citywide prevalence and cannot provide insights into interventions conducted in specific locations in the city.

This technical appendix was created on March 26, 2024 by the Johns Hopkins International Injury Research Unit using the following files:

- BIGRS3_GAR tech appendix_240326.do
- R6_DhakaNorth_BIGRS3 speed.dta

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1. Speeding

Key findings

- Overall, 5% of the vehicles were observed to be driving above the posted speed limit.
- When disaggregated by vehicle type, heavy vehicles were by far the leading type of vehicle exceeding the speed limit (12%), compared to light vehicles (7%) and motorcycles (2%).
- Minibuses/minivans (33%), buses (12%), and pickup/light trucks (11%) were among the leading types of vehicles exceeding the speed limit.
- About 30% of vehicles on collector/local roads were traveling above the recommended speed of 30 km/h.
- When disaggregated by vehicle ownership type, commercial vehicles had the highest prevalence of speeding at 9%.

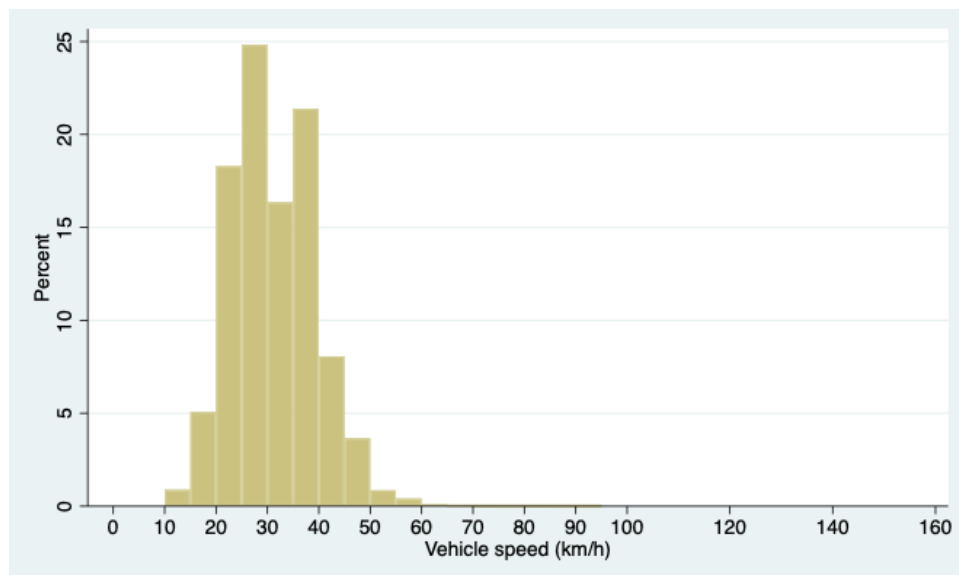
1.1. Total number of observed vehicles

60,438

1.2. Prevalence of exceeding the posted speed limit and summary measures of speed among all vehicles

N	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
60,432	5	31	8	30	39

1.3. Histogram of speed among all vehicles



1.4. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type

Vehicle type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Sedans/Saloons	14,825	1	31	8	32	39
Pickup/Light trucks	3,239	11	31	7	32	38
Buses	4,307	12	27	7	26	35
Minibuses/Minivans	3,699	33	33	8	34	42
SUVs	5,049	2	32	8	33	40
Three-wheelers	15,238	4	29	6	28	36
Motorcycles	14,075	2	33	10	32	44

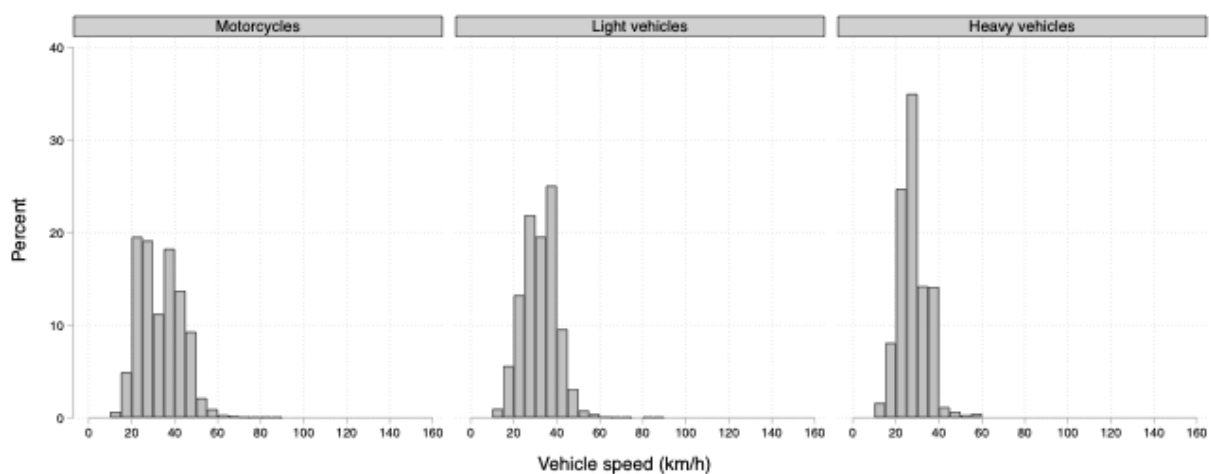
1.5. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle type group

Vehicle type group	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	14,075	2	33	10	32	44
Light vehicles*	26,812	7	32	8	32	39
Heavy vehicles†	4,307	12	27	7	26	35

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.6. Histogram of speed by vehicle type group



Graphs by Vehicle type (3 categories)

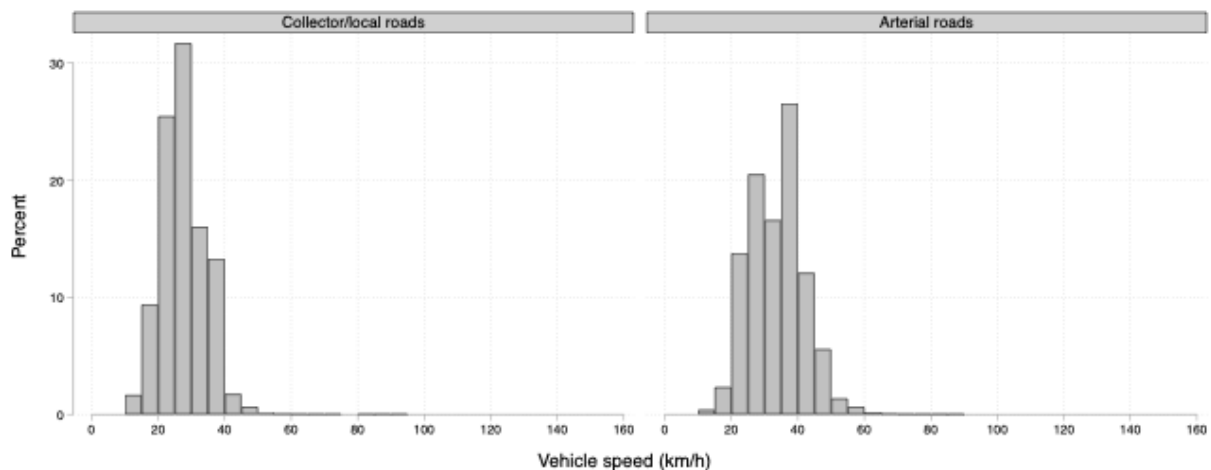
1.7. Prevalence of exceeding the posted speed limit and summary measures of speed by road type

Road type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	23,452	3	27	7	26	35
Arterial	36,980	7	33	8	34	42

1.8. Prevalence of traveling faster than 30 km/h in collector/local roads and 50 km/h in arterial roads

	n	Prevalence (%)
> 30 km/h in collector/local	23,458	30
> 50 km/h in arterial	36,980	2

1.9. Histogram of speed by road type



Graphs by Road type

1.10. Prevalence of exceeding the posted speed limit by extent of excess and summary measures of speed by speed limit

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	10,899	21	2	0	26	7	25	33
40	24,997	3	0	0	29	7	28	36
50	14,053	1	0	0	34	8	34	42
60	10,483	0	0	0	37	8	37	46
999	0	.	0	0	20	3	20	23

1.11. Prevalence of exceeding the posted speed limit by extent of excess and vehicle type

Speed limit (km/h)	n	Prev. of speed > limit (%)	Prev. of speed > limit + 10 km/h (%)	Prev. of speed > limit + 20 km/h (%)
Sedans/Saloons	14,825	1	0	0
Pickup/Light trucks	3,239	11	1	0
Buses	4,307	12	1	0
Minibuses/Minivans	3,699	33	4	0
SUVs	5,049	2	0	0
Three-wheelers	15,238	4	0	0
Motorcycles	14,075	2	0	0

1.12. Prevalence of exceeding the posted speed limit and summary measures of speed by vehicle ownership

Vehicle ownership type	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	29,572	9	30	7	31	37
Taxi	25	4	30	8	32	38
Ride-share	856	5	33	10	32	44
Other	29,979	2	32	9	29	42

1.13. Prevalence of exceeding the posted speed limit and summary measures of speed by day of the week

Day of the week	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	5,743	7	30	8	29	38
Tuesday	9,961	3	31	8	29	39
Wednesday	4,837	8	27	8	26	35
Thursday	7,770	3	29	7	28	36
Friday	9,398	8	31	8	31	37
Saturday	11,902	6	34	9	35	43
Sunday	10,821	4	31	8	31	41

1.14. Prevalence of exceeding the posted speed limit and summary measures of speed by weekday/weekend*

	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Weekday	39,132	5	30	8	29	38
Weekend	21,300	7	33	8	33	41

* The weekend is Friday and Saturday.

1.15. Prevalence of exceeding the posted speed limit and summary measures of speed by observation session start time

Session start time	n	Prevalence (%)	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	11,619	7	32	8	32	39
9:01 a.m. to 11 a.m.	12,076	4	30	8	29	38
11:01 a.m. to 2 p.m.	12,252	6	31	9	29	39
2:01 p.m. to 4 p.m.	12,892	6	31	8	31	39
4:01 p.m. to 7 p.m.	11,593	4	30	8	28	38

The following analyses on speeding are restricted to vehicles in free flow speed, which are defined as those traveling faster than the speed limit when/where there is no impedance for drivers to speed freely, such as bad weather, a junction, tight bend, speed bump, stop sign, crosswalk, and law enforcement activities nearby.

1.16. Summary measures of speed among vehicles in free flow speed

n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
2,327	38	8	36	44

1.17. Summary measures of speed among vehicles in free flow speed by vehicle type group

Vehicle type group	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Motorcycles	246	53	9	52	63
Light vehicles*	1,560	37	5	36	42
Heavy vehicle†	521	37	6	35	42

* Light vehicles include sedans/saloons/SUVs/4WDs, minibuses/minivans, and pickup/light trucks.

† Heavy vehicles include buses and trucks/large trucks.

1.18. Summary measures of speed among vehicles in free flow speed by road type

Road type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Collector/local	603	36	6	34	38
Arterial	1,724	39	8	36	46

1.19. Summary measures of speed among vehicles in free flow speed by speed limit

Speed limit (km/h)	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
30	1,851	36	4	35	39
40	342	45	5	44	49
50	93	56	5	54	58
60	41	66	6	65	70

1.20. Summary measures of speed among vehicles in free flow speed by vehicle ownership

Vehicle ownership type	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Commercial	2,065	37	6	35	42
Taxi	1	36	.	36	36
Ride-share	36	52	10	49	65
Other	225	50	11	51	62

1.21. Summary measures of speed among vehicles in free flow speed by day of the week

Day of the week	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
Monday	300	39	7	36	42
Tuesday	225	39	10	35	44
Wednesday	244	38	5	36	45
Thursday	209	35	6	33	44
Friday	520	39	8	36	37
Saturday	518	40	8	38	49
Sunday	311	37	5	36	45

1.22. Summary measures of speed among vehicles in free flow speed by observation session start time

Session start time	n	Mean (km/h)	Std. dev. (km/h)	Median (km/h)	85th pctl (km/h)
6:30 a.m. to 9 a.m.	562	38	7	36	44
9:01 a.m. to 11 a.m.	391	37	7	35	43
11:01 a.m. to 2 p.m.	505	41	9	39	51
2:01 p.m. to 4 p.m.	530	38	7	36	43
4:01 p.m. to 7 p.m.	339	37	6	35	42

1.23 Speed summary per location

Location	Latitude	Longitude	n	Speeding	Mean (km/h)	Std. dev. (km/h)	85th pctl (km/h)
247 GM bari, Satarkul road, Uttar Badda	23.7889106	90.4347414	1211	0	22	4	26
Asad Avenue near St. Joseph school	23.7601887	90.3702935	4167	2	29	7	37
Basila Road in front of Walton showroom	23.7563937	90.3580979	4215	2	28	5	34
Bijoy Shoroni in front of Novo Theatre	23.764632	90.3871497	6660	3	41	6	47
Gajnabi Road	23.7679434	90.3685303	3617	0	24	5	29
Gulshan link road in front of Rangs Babylonia	23.7706861	90.4052334	4618	9	32	5	36
Humayun Road	23.7669321	90.3635973	2029	2	20	4	23
In front of NICVD	23.7708604	90.3682933	5253	4	35	8	43
In front of Nabisco Biscuit Factory	23.7678504	90.4007741	6875	1	32	6	37
In front of Shyamoli Club	23.7741096	90.3626787	4163	8	33	6	38
Madani Avenue	23.7981072	90.4254958	4056	6	26	5	32
Main road near Satarkul road	23.7890721	90.4251822	4863	15	28	8	35
Main road opposite side of Badda High School	23.7800578	90.4255415	2935	0	23	4	27
Shahjadpur main road (opposite of lavender)	23.794229	90.424178	5776	15	35	7	42